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<110> Gene Shears Pty. Limited  
Paul, Wyatt  
Perez, Pascaul  
Huttner, Eric  
Betzner, Andreas S

<120> Protein Complementation In Transgenic Plants

<130> P19629US/TJF

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<151> 1997-02-21

<160> 68

<170> PatentIn version 3.2

<210> 1

<211> 344

<212> DNA

<213> Plant-Unknown

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<222> (9)..(344)

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ctt cag aca tat cat aag cta cct gat aat tac att aca aaa tca gaa 98  
Leu Gln Thr Tyr His Lys Leu Pro Asp Asn Tyr Ile Thr Lys Ser Glu  
15 20 25 30

gca caa gcc ctc ggc tgg gtg gca tca aaa ggg aac ctt gca gac gtc 146  
Ala Gln Ala Leu Gly Trp Val Ala Ser Lys Gly Asn Leu Ala Asp Val  
35 40 45

gct ccg ggg aaa agc atc ggc gga gac atc ttc tca aac agg gaa ggc 194  
Ala Pro Gly Lys Ser Ile Gly Gly Asp Ile Phe Ser Asn Arg Glu Gly  
50 55 60

aaa ctc ccg ggc aaa agc gga cga aca tgg cgt gaa gcg gat att aac 242  
Lys Leu Pro Gly Lys Ser Gly Arg Thr Trp Arg Glu Ala Asp Ile Asn  
65 70 75

tat aca tca ggc ttc aga aat tca gac cgg att ctt tac tca agc gac 290  
Tyr Thr Ser Gly Phe Arg Asn Ser Asp Arg Ile Leu Tyr Ser Ser Asp  
80 85 90

tgg ctg att tac aaa aca acg gac cat tat cag acc ttt aca aaa atc 338  
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95 100 105 110

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Arg

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Ala Leu Gly Trp Val Ala Ser Lys Gly Asn Leu Ala Asp Val Ala Pro  
35 40 45

Gly Lys Ser Ile Gly Gly Asp Ile Phe Ser Asn Arg Glu Gly Lys Leu  
50 55 60

Pro Gly Lys Ser Gly Arg Thr Trp Arg Glu Ala Asp Ile Asn Tyr Thr  
65 70 75 80

Ser Gly Phe Arg Asn Ser Asp Arg Ile Leu Tyr Ser Ser Asp Trp Leu  
85 90 95

Ile Tyr Lys Thr Thr Asp His Tyr Gln Thr Phe Thr Lys Ile Arg  
100 105 110

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<400> 3  
catggtctag agtacttg

18

<210> 4  
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<400> 4  
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16

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<400> 5  
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16

<210> 6  
 <211> 228  
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<220>  
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<400> 6  
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 atttttcttc aaactctgat cgggtcaattt cactttccgg atccggtcca atctgcagcc 120  
 gtccgagaca ggaggacatc gtccagctga aaccggggca gaatccggcc atttctgaag 180  
 agaaaaatgg taaactgata gaataaaatc ataagaaagg agccgcac 228

<210> 7  
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 Met Lys Lys Ala Val Ile Asn Gly Glu Gln Ile Arg Ser Ile Ser Asp  
 1 5 10 15  
 ctc cac cag aca ttg aaa aag gag ctt gcc ctt ccg gaa tac tac ggt 96  
 Leu His Gln Thr Leu Lys Lys Glu Leu Ala Leu Pro Glu Tyr Tyr Gly  
 20 25 30  
 gaa aac ctg gac gct tta tgg gat tgt ctg acc gga tgg gtg gag tac 144  
 Glu Asn Leu Asp Ala Leu Trp Asp Cys Leu Thr Gly Trp Val Glu Tyr  
 35 40 45  
 ccg ctc gtt ttg gaa tgg agg cag ttt gaa caa agc aag cag ctg act 192  
 Pro Leu Val Leu Glu Trp Arg Gln Phe Glu Gln Ser Lys Gln Leu Thr  
 50 55 60  
 gaa aat ggc gcc gag agt gtg ctt cag gtt ttc cgt gaa gcg aaa gcg 240  
 Glu Asn Gly Ala Glu Ser Val Leu Gln Val Phe Arg Glu Ala Lys Ala  
 65 70 75 80

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gaa ggc tgc gac atc acc atc ata ctt tct taa tacgatcaat gggagatgaa 293  
 Glu Gly Cys Asp Ile Thr Ile Ile Leu Ser 90

caatatagat cccccgggct gcaggaattc 323

<210> 8  
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 <212> PRT  
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 1 5 10 15

Leu His Gln Thr Leu Lys Lys Glu Leu Ala Leu Pro Glu Tyr Tyr Gly  
 20 25 30

Glu Asn Leu Asp Ala Leu Trp Asp Cys Leu Thr Gly Trp Val Glu Tyr  
 35 40 45

Pro Leu Val Leu Glu Trp Arg Gln Phe Glu Gln Ser Lys Gln Leu Thr  
 50 55 60

Glu Asn Gly Ala Glu Ser Val Leu Gln Val Phe Arg Glu Ala Lys Ala  
 65 70 75 80

Glu Gly Cys Asp Ile Thr Ile Ile Leu Ser  
 85 90

<210> 9  
 <211> 21  
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<400> 9  
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 <211> 194  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Figure 1D

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ctt cag aca tat cat aag cta cct gat aat tac att aca aaa tca gaa 98  
Leu Gln Thr Tyr His Lys Leu Pro Asp Asn Tyr Ile Thr Lys Ser Glu  
15 20 25 30  
gca caa gcc ctc ggc tgg atg ggc ggt ggc ggt tcc ggt ggc ggt ggc 146  
Ala Gln Ala Leu Gly Trp Met Gly Gly Gly Gly Ser Gly Gly Gly Gly Gly  
35 40 45  
agc ggc ggc ggt ggt agc ggg atc ccc ggg tac ggt cag tcc ctt atg 194  
Ser Gly Gly Gly Gly Ser Gly Ile Pro Gly Tyr Gly Gln Ser Leu Met  
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<210> 11  
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<220>  
<223> Figure 1D

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Thr Tyr His Lys Leu Pro Asp Asn Tyr Ile Thr Lys Ser Glu Ala Gln  
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Ala Leu Gly Trp Met Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
35 40 45  
Gly Gly Gly Ser Gly Ile Pro Gly Tyr Gly Gln Ser Leu Met  
50 55 60

<210> 12  
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<220>  
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ttcctcactc aatctggatt cttctcttta gctttttgaa attcagatct cttatcattt 180  
acttgtttct cttttaagga atccctccgg atcagcagag attgatcttc gccggaaagc 240  
agctcgaaga tggccgtact ttggctgact acaacatcca gaaaggtagc aaatcatccg 300

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aatccttctg ttgatcattt cgatgatctg attgtataaa ctctaattgga ttgttatcat 360  
 ttgtaaacag aatctacact tcattcttgg ttgaggctta gaggtggagc acagggttattc 420  
 aacacgtttg acgggggttgc ggattatctt cagacatattc ataagctacc tgataattac 480  
 attacaaaat cagaagcaca agccctcggc tggatgtaga ggatcc 526

<210> 13  
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<400> 13  
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 cctcactcaa tctggattct tctcttttagc tttttgaaat tcagatctct tatcatttac 180  
 ttgtttctcc ttttaaggaat ccttcaggat cagcagagat tgatcttcgc cggaaagcag 240  
 ctcgaagatg gccgtacttt ggctgactac aacatccaga aaggtagcaa atcatccgaa 300  
 tccttctggt gatcatttctg atgatctgat tgtataaact ctaatggatt gttatcattt 360  
 gtaaacagaa tctacacttc atcttgtggt gaggctttaga ggtggagcat caaaagggaa 420  
 ccttgagac gtcgctccgg ggaaaagcat cggcggagac atcttctcaa acagggaagg 480  
 caaactcccg ggcaaaagcg gacgaacatg gcgtgaagcg gatattaact atacatcagg 540  
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 ccattatcag acctttacaa aatcagata a 631

<210> 14  
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<210> 15  
 <211> 19  
 <212> DNA  
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<220>  
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<210> 16  
<211> 16  
<212> DNA  
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16

<210> 17  
<211> 23  
<212> DNA  
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<212> DNA  
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18

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31

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16

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17

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30

<210> 23  
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25

<210> 24  
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 tatggatccc ccgggctgca ggaa

24

<210> 25  
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21

<210> 26  
 <211> 23  
 <212> DNA  
 <213> Artificial



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 <210> 27  
 <211> 56  
 <212> DNA  
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 <210> 28  
 <211> 22  
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 catagatctt tagctgtcca tg 22  
 <210> 29  
 <211> 28  
 <212> DNA  
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 <400> 29  
 ccagatctat gagctcctcc aactactg 28  
 <210> 30  
 <211> 63  
 <212> DNA  
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 tct 63  
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<212> DNA  
<213> Artificial

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<400> 32  
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<210> 33  
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<212> DNA  
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<400> 33  
ctggacatcg gccaggctc 19

<210> 34  
<211> 48  
<212> DNA  
<213> Artificial

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<400> 34  
cgatgtccag gccgtctgca gccagaagaa cgtggcctgc aagaacgg 48

<210> 35  
<211> 21  
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<400> 35  
agttggtctg accgttcttg c 21

<210> 36  
<211> 60  
<212> DNA  
<213> Artificial

<220>  
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<210> 37  
<211> 19  
<212> DNA  
<213> Artificial

<220>  
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<400> 37  
cttgctggag ccggtctcg 19

<210> 38  
<211> 55  
<212> DNA  
<213> Artificial

<220>  
<223> Fig 3A: lanes 11/13, RN VI

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<210> 39  
<211> 21  
<212> DNA  
<213> Artificial

<220>  
<223> Fig 3A: lane 14, RN 6

<400> 39  
caggcaacaa tgatgtgctt g 21

<210> 40  
<211> 24  
<212> DNA  
<213> Artificial

<220>  
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<400> 40  
cgggatcctt tagacggagg cgtc 24

<210> 41  
<211> 66  
<212> DNA  
<213> Artificial

<220>  
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atcccg

66

<210> 42  
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 <213> Artificial

<220>  
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23

<210> 43  
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<400> 43  
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56

<210> 44  
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18

<210> 45  
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57

<210> 46  
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18

<210> 47  
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 1 5 10 15

xaa Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
 20 25 30

<210> 49  
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 <212> DNA  
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<400> 49  
 ggatccatga aggagaccgc cgccgccaag ttcgagcgcc agcacatgga cagctaaaga 60  
 tct 63

<210> 50  
 <211> 106  
 <212> DNA  
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<220>  
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<400> 50  
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 ggcggttccg gtggcggtgg cagcggcggc ggtggtagca agatct 106

<210> 51  
 <211> 330  
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<220>  
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<400> 51  
 agcaccagtg ctgccagttc ttccaactac tgtaaccaga tgatgaagtc tagaaacttg 60  
 accaaggaca gatgtaagcc agttaacaca tttgtccacg agagtttggc tgatgtccaa 120  
 gccgtctgca gtcagaaaaa cgttgcatgc aagaacggtc aaacgaactg ttaccagagt 180  
 tacagcacca tgtccatcac tgactgtcgt gagacaggct cgagcaagta tcctaattgt 240  
 gcttacaaga ccacacaggc gaacaaacac atcattgttg cttgtgaagg taacccttac 300  
 gttcctgtcc actttgacgc cagtgtttaa 330

<210> 52  
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 <212> PRT  
 <213> Artificial

<220>  
 <223> Fig 4B: lane 2

<400> 52

Met Ser Thr Ser Ala Ala Ser Ser Ser Asn Tyr Cys Asn Gln Met Met  
 1 5 10 15

Lys Ser Arg Asn Leu Thr Lys Asp Arg Cys Lys Pro Val Asn Thr Phe  
 20 25 30

Val His Glu Ser Leu Ala Asp Val Gln Ala Val Cys Ser Gln Lys Asn  
 35 40 45

Val Ala Cys Lys Asn Gly Gln Thr Asn Cys Tyr Gln Ser Tyr Ser Thr  
 50 55 60

Met Ser Ile Thr Asp Cys Arg Glu Thr Gly Ser Ser Lys Tyr Pro Asn  
 65 70 75 80

Cys Ala Tyr Lys Thr Thr Gln Ala Asn Thr Asp Cys Arg Glu Thr Gly  
 85 90 95

Ser Ser Lys Tyr Pro Asn Cys Ala Tyr Lys Thr Thr Gln Ala Asn Lys  
 100 105 110

His Ile Ile Val Ala Cys Glu Gly Asn Pro Tyr Val Pro Val His Phe  
 115 120 125

Asp Ala Ser Val  
130

<210> 53  
<211> 346  
<212> DNA  
<213> Artificial

<220>  
<223> Fig 4B, lane 3

<400> 53  
agatctatga gcacctccgc cgccagctcc tccaactact gcaaccagat gatgaagtct 60  
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gatgtccagg cegtctgcag ccagaagaac gtggcctgca agaacggta gaccaactgc 180  
taccagtcct acagcaccat gtccatcacc gactgccgcg agaccggctc cagcaagtac 240  
cctaactgcg cctacaagac caccaggcc aacaagcaca tcattgttgc ctgcgagggt 300  
aacccttacg tgcctgtcca cttcgacgcc tccgtctaaa ggatcc 346

<210> 54  
<211> 331  
<212> DNA  
<213> Artificial

<220>  
<223> Fig 4B, lane 4

<400> 54  
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tgcagccaga agaacgtggc ctgcaagaac ggctcagacca actgctacca gtcctacagc 180  
accatgtcca tcaccgactg ccgcgagacc ggctccagca agtaccctaa ctgcgcctac 240  
aagaccacac aggccaaaca gcacatcatt gttgcctgcg agggtaacct ttacgtgcct 300  
gtccacttcg acgcctccgt ctaaaggatc c 331

<210> 55  
<211> 163  
<212> DNA  
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<220>  
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cggtggggcg agctactacc gccagctctc aacggcgggc atcgtggaac agagacacca 120

gcacggtggc ggcgcgtttg gaagcttcca cttaagcga tcc 163

<210> 56  
 <211> 198  
 <212> DNA  
 <213> Artificial

<220>  
 <223> Fig 4C ii

<400> 56  
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 tactaccgcc agctctcaac ggcggcgatc gtggaacaga gacaccagca cggcggcgcc 120  
 gcgtttggaa gcttcactt aagaaggatg aaggagaccg ccgccgcaa gttcgagcgc 180  
 cagcacatgg acagctaa 198

<210> 57  
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 <213> Artificial

<220>  
 <223> Fig 4c iii

<400> 57  
 atgaagaatg ttttagtaag gtcagctgcg cgagctctgc ttggcggcgg tgggcggagc 60  
 tactaccgcc agctctcaac ggcggcgatc gtggaacaga gacaccagca cggcggcgcc 120  
 gcgtttggaa gcttcactt aagaaggatg aaggagaccg ccgccgcaa gttcgagcgc 180  
 cagcacatgg acagcggcgg tggcggttcc ggtggcggcg gcagcggcgg cggcggtagc 240  
 gggatccccg ggtacgggtca gtcccttatg 270

<210> 58  
 <211> 465  
 <212> DNA  
 <213> Artificial

<220>  
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<400> 58  
 atgaagaatg ttttagtaag gtcagctgcg cgagctctgc ttggcggcgg tgggcggagc 60  
 tactaccgcc agctctcaac ggcggcgatc gtggaacaga gacaccagca cggcggcgcc 120  
 gcgtttggaa gcttcactt aagaaggatg agctcctcca actactgcaa ccagatgatg 180  
 aagtctagga acctgaccaa ggacaggtgc aagccagtca acacctccgt ccacgagagc 240  
 ctggccgatg tccaggccgt ctgcagccag aagaacgtgg cctgcaagaa cggcagacc 300  
 aactgctacc agtcctacag caccatgtcc atcaccgact gccgcgagac cggctccagc 360  
 aagtacccta actgcgcccta caagaccaca caggccaaca agcacatcat tgttgccctgc 420



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